

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Currently Amended) A multimedia information generation apparatus for generating a multimedia information data file including at least one two-dimensional image or character information and at least one three-dimensional image, comprising:

a control information generation unit generating control information for controlling display of said three-dimensional image, wherein said control information includes the number of viewpoints for said three-dimensional image and at least i) camera arrangement information for image pick-up, ii) a direction of thinning during generation of said three-dimensional image from said two-dimensional image, iii) parallax amount shift limit information, iv) parallax image switching pitch information, v) image arrangement of said two-dimensional images corresponding to parallax images, and vi) reversal information on each of said parallax images; and

a multimedia information generation unit generating said multimedia information data file including said at least one two-dimensional image or character information and at least one three-dimensional image and said control information, wherein

said camera arrangement information for image pick-up indicates one of a parallel camera arrangement, a convergent camera arrangement and a divergent arrangement,

said at least one two-dimensional image or character information and at least one three-dimensional image are data to be synthesized.

2. (Currently Amended) A multimedia information generation apparatus for generating a multimedia information data file comprised of a plurality of modules, comprising

a module generation unit generating said modules including at least one two-dimensional image or character information and at least one three-dimensional image, wherein

said modules include control information for controlling display of said three-dimensional image,

said control information includes the number of viewpoints for said three-dimensional image and at least i) camera arrangement information for image pick-up, ii) a direction of thinning during generation of said three-dimensional image from said two-dimensional image, iii) parallax amount shift limit information, iv) parallax image switching pitch information, v) image arrangement of said two-dimensional images corresponding to parallax images, and vi) reversal information on each of said parallax images,

said camera arrangement information for image pick-up indicates one of a parallel camera arrangement, a convergent camera arrangement and a divergent arrangement, and

said at least one two-dimensional image or character information and at least one three-dimensional image are data to be synthesized.

3. (Previously Presented) The multimedia information generation apparatus according to claim 1 or 2, wherein said control information is provided correspondingly to each three-dimensional image.

4. (Previously Presented) The multimedia information generation apparatus according to claim 1 or 2, wherein said control information is provided correspondingly to a plurality of three-dimensional images.

5. (Previously Presented) The multimedia information generation apparatus according to claim 1, wherein an identifier for identifying each of at least said two dimensional image and said three-dimensional image is set in advance, and said control information includes said identifier of the three-dimensional image.

6. (Previously Presented) The multimedia information generation apparatus according to claim 2, wherein an identifier for identifying each of at least said two-dimensional image and said three-dimensional image is set in advance, and said control information includes said identifier of the three-dimensional image.

7. (Previously Presented) The multimedia information generation apparatus according to claim 5 or 6, wherein said control information includes a plurality of identifiers.

8. (Currently Amended) The multimedia information generation apparatus according to claim 5 or 6, wherein a predetermined value of said identifier indicates that all of images included in said multimedia information data file are three-dimensional images.

9. (Previously Presented) The multimedia information generation apparatus according to claim 5, wherein a predetermined value of said identifier indicates that all of images included in said modules are three-dimensional images.

10. (Currently Amended) A multimedia information reproduction apparatus reproducing multimedia information from multimedia information data files, each including at least one two-dimensional image or character information of two-dimensional page data and at least one three-dimensional image, comprising:

a generation unit generating a three-dimensional image from said two-dimensional image or character information of two-dimensional page data; and

a first synthesis unit synthesizing said three-dimensional image generated by said generation unit and the three-dimensional image included in said each multimedia information data file, wherein generating the three-dimensional image from said character information of two-dimensional page data includes thinning a horizontal resolution of the character information of two-dimensional page data to $1/n$ when a number of viewpoints for the three-dimensional image is n , and then making a line forming a portion of three-dimensional image to have one of a horizontal dimension and vertical dimension that is bolder than that of a line representing a corresponding portion of the character information of two-dimensional page data.

11. Currently Amended) The multimedia information reproduction apparatus according to claim 10, further comprising a second synthesis unit synthesizing a plurality of two-dimensional images or character information of two-dimensional page data, and

said generation unit generates three-dimensional image data from two-dimensional image data obtained through synthesis by said second synthesis unit, instead of said two-dimensional images or character information of two-dimensional page data.

Claims 12 - 13 (Canceled)

14. (Currently Amended) A multimedia information reproduction apparatus reproducing multimedia information from multimedia information data files, each including a plurality of sets of at least one two-dimensional image or character information and at least one three-dimensional image, comprising:

a page data decoding unit decoding graphic and character information included in said each multimedia information data file to obtain a page image;

a 2D/3D conversion unit converting said page image into a three-dimensional image; and

a first synthesis unit synthesizing the three-dimensional image generated by said 2D/3D conversion unit and the three-dimensional image included in said each multimedia information data file;

a second synthesis unit synthesizing a plurality of two-dimensional images, and

said 2D/3D conversion unit converts two-dimensional image data obtained through synthesis by said second synthesis unit into three-dimensional image data, converting two-

dimensional data into three-dimensional image data by the 2D/3D conversion unit including thinning a horizontal resolution of the two-dimensional data to $1/n$ when a number of viewpoints for the three-dimensional image is n and duplicating each thinned image to generate two images, wherein

a first font image and a second font image corresponding to the character information are provided,

a line forming a portion of said second font image has one of a horizontal dimensional and vertical dimension that is thinner than that of a line representing a corresponding portion of said first font image, said first font image is used when the character information is three-dimensionally displayed and said second font image is used when the character information is two-dimensionally displayed.

15. (Previously Presented) The multimedia information reproduction apparatus according to claim 14, wherein said page data decoding unit uses said first or second font image to obtain the page image.

16. (Previously Presented) The multimedia information reproduction apparatus according to claim 14, wherein said 2D/3D conversion unit uses said first or second font image to obtain the three-dimensional image.

17. (Previously Presented) The multimedia information reproduction apparatus according to claim 15, further comprising:

a font image storage unit storing said first font image and said second font image; and
a switch selecting said first font image or said second font image.

18. (Previously Presented) The multimedia information reproduction apparatus according to claim 15, further comprising a font conversion unit converting the second font image into the first font image.

19. (Previously Presented) The multimedia information reproduction apparatus according to claim 14, wherein said first font image is comprised of a plurality of pieces of light/dark information and arranged so that apparent character thickness is thin.

20. (Previously Presented) The multimedia information reproduction apparatus according to claim 16, further comprising:

a font image storage unit storing said first font image and said second font image; and
a switch selecting said first font image or said second font image.

21. (Previously Presented) The multimedia information reproduction apparatus according to claim 16, further comprising a font conversion unit converting the second font image into the first font image.